

Applicant : Alexander Vainstein et al.

Serial No. : 09/914,146

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Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Withdrawn) A method of transforming a carnation (*Dianthus L.*) plant genome with a DNA molecule comprising:
  - (a) preparing stem explants from carnation cuttings;
  - (b) wounding the explants by microprojectile bombardment;
  - (c) cocultivating said wounded explants with *Agrobacterium* comprising said DNA molecule under conditions of exposure to dark followed by light;
  - (d) excising shoots from said cultivated wounded explants and removing the leaves from said shoots; and
  - (e) culturing said leaves to obtain transgenic shoots transformed with said DNA molecule.
2. (Withdrawn) A method according to Claim 1 wherein said conditions of dark followed by light comprise 2-4 days in the dark followed by 1-4 days in the light.
3. (Withdrawn) A method according to Claim 1 wherein said carnation cuttings are stem cuttings with four to ten fully mature leaves.
4. (Withdrawn) A method according to Claim 3 wherein leaves and shoot apices are removed from said stem cuttings and two to five primary nodes are isolated.
5. (Withdrawn) A method according to Claim 1 wherein said microprojectile bombardment comprises accelerating tungsten particles at said stem explants.

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6. (Withdrawn) A method according to Claim 5 wherein said tungsten particles are accelerated at a pressure of 1300-2000 psi and at a distance of 3-12 cm from said explants.
7. (Withdrawn) A method according to Claim 1 wherein said wounded explants are cocultivated with *Agrobacterium* in a medium supplemented by  $\alpha$ -naphthalene acetic acid (NAA) and 1-phenyl-3(1,2,3-thiadiazol-5-yl)-urea (TDZ).
8. (Withdrawn) A method according to Claim 1 wherein the leaves of said excised shoots are cultured in a medium supplemented by NAA and 6-benzylaminopurine (BAP).
9. (Withdrawn) A transgenic carnation plant obtained by the method of Claim 1.
10. (Withdrawn) A transgenic carnation plant according to Claim 9 wherein said DNA molecule is the *Agrobacterium rhizogenes rolC* gene.
11. (Withdrawn) A plant according to Claim 10 wherein said *rolC* gene is under the control of a cauliflower mosaic virus (CaMV) 35S promoter.
12. (Withdrawn) A transgenic carnation plant transformed with the *Agrobacterium rhizogenes rolC* gene.
13. (Withdrawn) A transgenic carnation plant transformed with a DNA molecule comprising the sequence of Fig. 6.
14. (Withdrawn) A transgenic carnation plant according to Claim 9 wherein expression of the flavanone 3-hydroxylase (*fht*) gene is blocked.
15. (Withdrawn) A plant according to Claim 14 wherein the expression of the *fht* gene is blocked by an antisense molecule.

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16. (Withdrawn) A plant according to Claim 15 wherein said antisense molecule comprises the whole or a fragment of the *fht* gene in antisense orientation.
17. (Withdrawn) A plant according to Claim 16 wherein said antisense molecule comprises the sequence of Fig. 13.
18. (Withdrawn) A transgenic carnation plant wherein expression of the flavanone 3-hydroxylase (*fht*) gene is blocked.
19. (Withdrawn) A transgenic carnation plant transformed with a DNA molecule comprising the sequence of Fig. 13.
20. (Withdrawn) A DNA sequence of Fig. 13.
21. (Original) A method for controlling the fragrance of a plant comprising modulating gene expression in the anthocyanin-biosynthetic pathway of said plant.
22. (Currently amended) [[A]] The method according to Claim 21, wherein said plant is a carnation.
23. (Currently amended) [[A]] The method according to Claim 21, wherein said modulation comprises suppressing the expression of one or more genes in said pathway.
24. (Currently amended) [[A]] The method according to Claim 23, wherein said modulation comprises suppressing the expression of the *fht* gene.
25. (Currently amended) [[A]] The method according to Claim 24, wherein expression of the *fht* gene is suppressed by an antisense molecule.

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26. (Original) A transgenic plant wherein the fragrance of said plant has been changed by modulating gene expression in the anthocyanin-biosynthetic pathway of said plant.
27. (Withdrawn) A method for controlling the color of a plant comprising modulating gene expression in the anthocyanin-biosynthetic pathway of said plant.
28. (Withdrawn) A method according to Claim 27 wherein said plant is a carnation.
29. (New) The method according to Claim 21, wherein said plant is a carnation (*Dianthus L.*) plant, and the method is conducted by (a) preparing a stem explant from a carnation cutting; (b) wounding said explant by microprojectile bombardment; (c) cocultivating said wounded explant with *Agrobacterium* comprising a DNA molecule under conditions of exposure to dark followed by light to transform the carnation plant genome, wherein said DNA molecule modulates gene expression in the anthocyanin-biosynthetic pathway of the plant; (d) excising a shoot from said cultivated wounded explant and removing a leaf from said shoot; and (e) culturing said leaf to obtain a transgenic shoot transformed with said DNA molecule.
30. (New) The method according to Claim 29, wherein said modulation comprises suppressing the expression of one or more genes in said pathway.
31. (New) The method according to Claim 30, wherein said modulation comprises suppressing the expression of the *fht* gene.
32. (New) The method according to Claim 31, wherein expression of the *fht* gene is suppressed by an antisense molecule.
33. (New) The method according to Claim 29, wherein said conditions of dark followed by light comprise 2-4 days in the dark followed by 1-4 days in the light.

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34. (New) The method according to Claim 29, wherein said carnation cutting is a stem cutting with four to ten fully mature leaves.

35. (New) The method according to Claim 34, wherein leaves and shoot apices are removed from said stem cuttings and two to five primary nodes are isolated.

36. (New) The method according to Claim 29, wherein said microprojectile bombardment comprises accelerating tungsten particles at said stem explant.

37. (New) The method according to Claim 36, wherein said tungsten particles are accelerated at a pressure of 1300-2000 psi and at a distance of 3-12 cm from said explant.

38. (New) The method according to Claim 29, wherein said wounded explant is cocultivated with *Agrobacterium* in a medium supplemented by  $\alpha$ -naphthalene acetic acid (NAA) and 1-phenyl-3(1,2,3-hiadiazol-5-yl)-urea.

39. (New) The method according to Claim 29, wherein the leave of said excised shoot is cultured in a medium supplemented by NAA and 6-benzylaminopurine.

40. (New) A transgenic carnation plant obtained by the method of Claim 29.

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